

Six-Legged Spider Bot using Klann Mechanism

<https://www.youtube.com/watch?v=6tFXgCczo5s>

The Six-Legged Spider Bot Using Klann Mechanism (RF Controlled) is a mobile robotic platform designed to imitate the walking movement of a spider using a mechanical linkage known as the Klann mechanism. The robot is controlled wirelessly through an RF transmitter and RF receiver, allowing the user to move the robot remotely without physical connections. A microcontroller receives the RF commands and controls a DC motor through a motor driver circuit. The rotational motion of the motor is converted into a legged walking motion by the Klann linkage, enabling the robot to move over uneven surfaces more effectively than conventional wheeled robots.

The system is powered by a Li-Po battery, making it portable and suitable for outdoor operation. A crystal oscillator provides accurate timing for the microcontroller, while a reset button ensures reliable operation and LED indicators display the system status. The six-legged structure provides better stability and balance during movement. The proposed robot can be used for surveillance, inspection, search-and-rescue support, and educational robotics applications where terrain adaptability is important.

Features:

- RF wireless remote-control operation
- Six-legged walking mechanism based on Klann linkage
- Microcontroller-based motion control

- DC motor with motor driver for efficient movement
- Stable and balanced locomotion
- Better movement on uneven surfaces than wheeled robots
- Portable and rechargeable Li-Po battery power supply

Components Required:

- Microcontroller (PIC/Arduino-compatible)
- RF Transmitter Module
- RF Receiver Module
- DC Motor
- Motor Driver (L293D/L298N or equivalent)
- Li-Po Battery
- 5V DC Power Supply / Voltage Regulator
- Crystal Oscillator
- Reset Push Button
- LED Indicators
- Klann Mechanism Linkage Set
- Robot Chassis / Frame
- Connecting Rods and Linkages
- Wheels/Gears (if required for transmission)

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.

Block Diagram

